





XX	Sus scrofa.
OS	
XX	
XX	
FH	Key
PT	location/Qualifiers
CDS	16..1131
FT	/.*cd= a
XX	
PN	M09528412-A1.
XX	
PB	26-OCT-1995.
XX	
PF	31-MAR-1995; 95WU-0S03940.
XX	
PR	13-APR-1994; 94US-0228933.
XX	
PA	(BIOT-) BIOTRANSPLANT INC.
PA	(CEHO) GEN HOSPITAL CORP.
PA	(CHIL-) INST CHILD HEALTH.
XX	
PI	Baetscher MW, Gustafsson KT, Sachs DH;
DR	WPL: 1995-374759/48.
DR	P-PSDB: AAR85082.
XX	
PT	Novel transgenic alpha (1,3) galactosyl transferase negative swine
PT	- used to produce rejection resistant cells for xenogenic
PT	transplantation
XX	
PS	Claim 11: pages 35-37; 56pp; English.
XX	
CC	Transgenic swine in which the normal expression of the alpha (1,3)
CC	galactosyltransferase (AGT) AAR85082 is prevented, are prepd. by
CC	inhibiting the expression of the AGT gene AAT02892 using antisense
CC	oligonucleotides or ribozyme inactivators in a pluripotent porcine
CC	embryonic stem cell. It is then inserted into a porcine oocyte
CC	(from which the pronuclear material has been removed), which is
CC	itself grown to produce the transgenic swine. Swine which do not
CC	express AGT will not produce carbohydrate moieties conlg. the
CC	distinctive terminal Gal-alpha-1,3-Gal-beta-1,4GlcNAc epitope,
CC	which is a significant factor in xenogenic (esp. human) transplant
CC	rejection of swine grafts. Therefore the swine cells produced in
CC	the AGT negative transgenic swine are xenogenic transplant
CC	rejection resistant, and can therefore be used by a transplant
CC	recipient, or to provide gene therapy.
XX	
XQ	Sequence 1269 BP; 384 A; 261 C; 104 G; 320 T; 0 other;

Query Match	65.3%	Score 863.67	DB 16	Length 1269
Best Local Similarity	87.1%	Pred. NO. 3.6e-237		
Matches 989	Conservative 0	Mismatches 129	Indels 18	Gaps 3
QY 180	atgaagaaataatgatgattgcagaagaaagattctgcgaatgcgttatctca	239		
Db 2	atgaagaaataataatgatgattgcagaagaaagattctgcgaatgcgttatctca	61		
QY 240	ctatcatctgttctgtttcttgcgaatatatccaaagcccaagacctttgtctcagataa	299		
Db 62	ctgaatagttgttgcgtttcttgcgaatatatccaaagcccaagacctttgtctcagatat	121		
QY 300	accatcatcaagaaaccccaaaatcattcgtgcgcagcagcatctcagaagatcgtatgtttc	359		
Db 122	accatcatcaagaaaccccaaaatcattcgtgcgcagcagcatctcagaagatcgtatgtttc	175		
QY 360	cgaaatgatttaaacatg-----gttacacaaagaaagatgaagatcagcagaag	410		
Db 176	cgaaatgattttacacatctgagatccaatctaacacaaagaaagaaagcgtctataagcgaag	235		
QY 411	aaaggaacaaagaaagaaagacac-----aaacaaacttaaacctatcgtgattgccaac	467		

[illegible]









cc for xenotransplants. Neutralisation of the alpha-1,3-GT leads to tissues  
cc or organs lacking the galactose on the glycoproteins and glycolipids,  
cc thus preventing induction of the rejection response.

XX Sequence: 1092 BP; 325 A; 228 C; 279 G; 260 T; 0 other;

Query Match: 60.1%; Score 782.6; 108 19; Length 1092;  
Best Local Similarity: 84.2%; Prod. No: 5.20-214;  
Matches: 991; Conservative: 0; Mismatches: 124; Indels: 54; Gaps: 4;

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01 187 aaatgaatgaatgtcaaaagaaatgattctcaatgctgctgtctcaactatcat 246
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04 247 ttttgggttttgggaatatactcaagcccaagaaagctctcttcttctgataaaccatc 306
05 1111111111111111111111111111111111111111111111111111111
06 66 gtttgggttttgggaatatactcaagcccaagaaagctctcttcttctgataaaccatc 90
07 aaagaaaccagaaatcattggtggtcagcagcactccagaaagctggttctccagaaatg 366
08 1111111111111111111111111111111111111111111111111111111
09 91 agaaatccagaaatcattggtggtcagcagcactccagaaagctggttctccagaaatg 143
10 467 gtttcaaaatg ----- gtttaacaaagaatgaaagcgttcaagcagaagaaagaa 417
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13 418 atcaaaagaagaagaagaaagaaagcgttataagcaacaaagcgttataagcaacaaag 474
14 204 atcaaaagaagaagaagaaagcgttataagcaacaaagcgttataagcaacaaag 263
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17 264 atcagcgtgagctgtgactatgacaaatggaagagcagcgtggttctgggaagcactta 323
18 535 caaaagaagcagcgttcaagcagatcaactcaagcagaagaaatcaacgtcagcgtgagc 594
19 324 caaaagaagcagcgttcaagcagatcaactcaagcagaagaaatcaacgtcagcgtgagc 383
20 595 tttcagcgtcagcagatcaactcaagcagaagaaatcaacgtcagcgtgagc 654
21 484 tctgctgtcagcagaatatactcaagcagaagaaatcaacgtcagcgtgagc 443
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23 444 atactcagcgttggcagcagcagcgttcaatctcaagcagaagcagcgttcaagcagat 503
24 715 ggaactcagcgttggcagcagcagcgttcaatctcaagcagaagcagcgttcaagcagat 774
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34 1015 ggaactcagcgttggcagcagcagcgttcaatctcaagcagaagcagcgttcaagcagat 1074
35 804 ggaactcagcgttggcagcagcagcgttcaatctcaagcagaagcagcgttcaagcagat 863
36 1075 ggaactcagcgttggcagcagcagcgttcaatctcaagcagaagcagcgttcaagcagat 1134

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01 864 catcaactgaagatgcttccaaagaaatctccaaagaaagaaatgactaaagacaa 924
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03 924 gttgatatgaagacacataaacaatattctcttcaacaacacacaaatcatt 983
04 1195 atcccggaatgactggaatataagcgttaccgtcagcgttataagctgttcaa 1254
05 984 atcccggaatgactggaatataagcgttaccgtcagcgttataagctgttcaa 1043
06 1255 gattgcttgaagaaagaaatataatgattagaatagaacttga 1303
07 1044 gataactcagcagaagaaagaaatataatgattagaatagaacttga 1092

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# RESULT: 8

AAV49455 standard; cDNA to mRNA: 1065 BP.

AAV49455;

10-NOV-1998 (first entry)

Porcine alpha-1,3-galactosyl transferase isoform 3 cDNA.

isoform: porcine; enzyme: alpha-1,3-galactosyl transferase; galactose;  
sugar: N-acetyllactosamine; glycoprotein: glycolipid; antibody: pig;  
graft tissue rejection; organ transplantation; xenotransplant; ss.

Sus scrofa.

Key location/Qualifiers

FT CDS 1..1063  
FT /tag a  
FT /product= "alpha-1,3-galactosyl transferase isoform 2"  
FT /note= "contains no start or stop codon at the 5' or 3'  
ends of the sequence"

FR275146-A1.

23-JAN-1998.

19-JUL-1996; 96FR-0009077.

19-JUL-1996; 96FR-0009077.

(INERM ) INSERM INST NAT SANTE & RECH MEDICALE.

pourcel C, Soullion JP, Vanhove B;

WPI: 1998-112876/11.

P-PSDB: AAV49455.

Transgenic non-human donors of organs for human recipients -  
containing DNA encoding antibodies that inhibit graft rejection

Claim 4: Page 39-41; 71pp; French.

This sequence represents the cDNA encoding isoform 3 of the porcine  
enzyme alpha-1,3-galactosyl transferase (alpha-1,3-GT). The enzyme  
catalyses the attachment of a galactose sugar molecule on the  
N-acetyllactosamine moiety found on surface glycoproteins and  
glycolipids. These sugar molecules are partly responsible for raising  
anti-graft antibodies, which lead to graft tissue rejection. The  
invention relates to a method of inhibiting the graft rejection mechanism  
by introducing the sequence encoding an antibody targeted to alpha-1,3-GT  
into the cells of animal, especially a pig, from whom organs may be used  
for xenotransplants. Neutralisation of the alpha-1,3-GT leads to tissues  
or organs lacking the galactose on the glycoproteins and glycolipids,  
thus preventing induction of the rejection response.

Sequence 1065 BP; 320 A; 224 C; 264 G; 257 T; 0 other;



Query Match 59.0%: Score 769.2; DB 19; Length 1065;  
 Best Local Similarity 82.7%: Pred. No. 3.5e-210;  
 Matches 929; Conservative 0; Mismatches 128; Indels 63; Gaps 2;

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QY 187 gaataatgaatgtcaagaagaagatgattctgcaatgctggtgtcctcaatcat 246
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DB 6 gaataatgaatgtcaagaagaagatgattctgcaatgctggtgtcctcaatcat 65

QY 247 tatlgtgttttgggaatataatccacagcccaagaagctcttctgtcgtataaccac 306
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DB 66 ggtctgtgtttgggaatataatccacagcccaagaagctcttctgtcgtataaccac 125

QY 307 aagaacccagagatctggtggtgagcagcatctgagaaggtctgtgttccgagatg 366
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 126 aagatctc----- 133

QY 367 gtttaacaaatgtttaccaaagaagatgaagacgtatgacagaagaagaagaagaa 426
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DB 134 -----acagttacacagaaagaagaagacgtatgacagaagaagaagaagaa 185

QY 427 ggaagacaa---aagcaagcttaagctacagactgtttcaaccatttaacgaccttga 483
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QY 484 ggttctgacataacagagattggaagagacccgtgtgtgtggaagcacttacacagagc 543
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DB 246 ggtctgtgacataacaaagatggaagcctccagttatggaagagcacttacacagagc 305

QY 544 gctcttaagcagtttactaagcagaagaattccgtgcgcctgacggttttcgcgt 603
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DB 306 gctcttgaagataattatgacaaagaagaataccggtgtgtgtgtgtgtgtgtgtgt 365

QY 604 cgaagaaatcaattgaacattacttgaaagagtttcaactgtctgaataaagaaactcat 663
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DB 366 cgaagaaatcaattgaacattacttgaaagagtttcaactgtctgaataaagaaactcat 425

QY 664 gatttgcacacagatgatttttcaactgattggaagacgctctccagaagacttgaat 723
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DB 426 gatttgcacacagatgatttttcaactgattggaagacgctctccagaagacttgaat 485

QY 724 aagagctgagcctctgagctcttcaaaagtgttgaagcagaagctgagaagagtgga 783
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QY 784 gacagctcaagatgagtcagatgaagaacacctcgagagacacatcgtgacacatccag 843
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DB 546 gacagctcaagatgagtcagatgaagaacacctcgagagacacatcgtgacacatccag 605

QY 844 tgaagtttaactctctctctcgtacagagtgagcagatcttccaagagagttcgaggt 903
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QY 904 ggaagccctgggttgagtggtggtggtggtggtggtggtggtggtggtggtggtggtggt 963
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QY 964 taagtttaactcagagacgagcaagagatcttcaagacatcattctcttcgaggaagga 1023
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DB 726 cgaagtttaactcagagacgagcaagagatcttcaagacatcattctcttcgaggaagga 785

QY 1024 ttttattacagcagacacatttctgggggaacacccactcaggtcttataaccacca 1083
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QY 1084 ggaagagcttcaagaagaatcttcaagagacaaagaatgaacagagacccaatgcatga 1143
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QY 1144 tgaagagcattcaacaaagatatttctcttcaacaaacccaataaatcttaccggga 1203
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DB 906 tgaagagcattcaacaaagatatttctcttcaacaaacccaataaatcttaccggga 965
  
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QY 1204 atactgtcgtgattatcatatgaagcctactcgtgagatataactgttcaagatcttga 1263
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DB 966 atactgtcgtgattatcatatgaagcctactcgtgagatataactgttcaagatcttga 1025

QY 1264 gcaagacaaagatataatggtgttgaagaataacgtctga 1303
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DB 1026 gcaagacaaagatataatggtgttgaagaataacgtctga 1065
  
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## RESULT 9

AAV49456

ID AAV49456 standard; cDNA to mRNA; 1029 bp.

AC AAV49456;

XX

DT 10-NOV-1998 (first entry)

XX

DE Porcine alpha-1,3-galactosyl transferase isoform 4 cDNA.

XX

KW Isoform; porcine; enzyme; alpha-1,3-galactosyl transferase; galactose;

KW sugar; N-acetyllactosamine; glycoprotein; glycolipid; antibody; pig;

KW graft tissue rejection; organ transplantation; xenotransplant; ss.

XX

OS Sus scrofa.

XX

FH Key Location/Qualifiers

FT CDS

FT 1..1027

FT /product= "alpha-1,3-galactosyl transferase isoform 2"

FT /note= "contains no start or stop codon at the 5' or 3'

FT ends of the sequence"

XX

PN FR2751346-A1.

XX

PD 23-JAN-1998.

XX

PE 19-JUL-1996; 96FR-0009077.

XX

PR 19-JUL-1996; 96FR-0009077.

XX

PA (INRM ) INSEMN INST NAT SANTE &amp; RECH MEDICALE.

XX

PI Pourcel C, Souillion JP, Vanhove B;

XX

DR WPI: 1998-112876/11.

XX

DR P-PSDB; AAM49689.

XX

PT Transgenic non-human donors of organs for human recipients -

XX

PT containing DNA encoding antibodies that inhibit graft rejection

XX

PS Claim 4; Page 43-44; 71pp; French.

XX

CC This sequence represents the cDNA encoding isoform 4 of the porcine

CC enzyme alpha-1,3-galactosyl transferase (alpha 1,3-GT). The enzyme

CC catalyses the attachment of a galactose sugar molecule on the

CC N-acetyllactosamine moiety found on surface glycoproteins and

CC glycolipids. These sugar molecules are partly responsible for raising

CC anti-graft antibodies, which lead to graft tissue rejection. The

CC invention relates to a method of inhibiting the graft rejection mechanism

CC by introducing the sequence encoding an antibody targeted to alpha-1,3-GT

CC into the cells of animal, especially a pig, from whom organs may be used

CC for xenotransplants. Neutralisation of the alpha-1,3-GT leads to tissues

CC or organs lacking the galactose on the glycoproteins and glycolipids,

CC thus preventing induction of the rejection response.

CC

SQ Sequence 1029 bp; 310 A; 216 C; 257 G; 246 T; 0 other;

Query Match 56.4%: Score 735.4; DB 19; Length 1029;  
 Best Local Similarity 87.7%: Pred. No. 1.6e-200;  
 Matches 815; Conservative 0; Mismatches 111; Indels 3; Gaps 1;

QY 378 gttaccagaagaagatgaagacgtgagcgaagaagaagaagaagaagaagaagaagaaga 437













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